

"STEREOFLEXOGRAPHY"

This patent seeks to protect the catalysis process (cure) of plates for graphic printing formed by photopolymer, in either liquid or solid state, for the stamps and flexographic sectors, respectively.

The flexographic sector's origins date back to the ancient woodcuts, texts and images carving in wood plates, used in the first stamps for graphic printing. Today, flexography differs from stamps, only, in the higher resolution of its printing plates, which is necessary to allow us to define its screen printing ('CMYK' system), and is similar in the remaining of the making, including the generation of printing relief third dimension, which is not necessary in two-dimensional printing plates used in the off-set sector.

Now, an analogical flexographic plate, made up by solid photopolymer, anchored in a transparent laminated plastic, is processed on both sides, separately, in a space procedure, for exposure to a radiation that ranges from ultraviolet (UV) to the visible light. The entire area of the bottom face (back exposure), anchored in the transparent laminate is exposed to the radiation, thereby generating a base whose thickness is proportional to the exposition time. The upper face (main exposure), designed for graphic printing, are exposed, only, in which texts and images (screen printing CMYK), in a 'black and white' negative film, allow a passage, thereby generating a relief on that base, after the washing to remove the non-catalyzed portion. In the digital process, the negative film is replaced by a black pellicle, which is sensitive to the infrared laser, adhered to the upper face, thereby originating a flexographic digital plate.

The 'Stereoflexography' is an improvement in the photopolymer plates making process, either in liquid or solid state, processed by the action of two-dimensional analogical or digital emission devices, which emit radiations ranging from the visible to the invisible spectrum. It is characterized by the 'main exposure' and 'back exposure' of the photopolymer plate to the radiation, only, to the bottom face (2), thereby catalyzing the formation of both the relief base (8) and the printing relief (10), simultaneously, by the action of two different

radiation levels: a low, to generate the relief base (8) and a maximum, to generate the printing relief (10). The neologism 'Stereoflexography' is the most appropriate for this new process because it generates the third dimension in the photopolymer plate, resulting from adding the height of the relief base (8) to the height of the printing relief (10), thereby generating the relief that is necessary to the graphical printing of texts and image on a flat and flexible substance, starting from any two-dimensional (negative film, LCD or DMD) radiation emission device.

To facilitate the understanding of this process, see fig.1, shows an analogical two-dimensional emission device and a flexographic plate, formed by a 2 mm thick photopolymer, shown in a 30-time enlarged cross-section, in which both the upper face (1) and the bottom face (2) made up by a transparent laminated plastic. The emission device, in this case, is formed by a black and white negative film, in which the black area was replaced by a pre-established percentile (halftone) of grey (3), and having the transparent area (4) placed against the bottom face (2); and a flat UV light source (6), emitting its radiation (5), polarized by the filter (7). The black area of the negative film, replaced by the percentile of grey (3), will have the function of allowing the low radiation level to pass through, thereby creating the relief base (8); whilst the white area (transparent) (4) of the negative film, will have the function of allowing a passage for the maximum radiation level, thereby creating the dot relief (10), after the washing to remove the non-catalyzed portions (11). By establishing one single radiation exposure time, as necessary to form the printing relief (10), the percentile of grey will be altered, which will allow the, exact, amount of radiation to pass through to form the thickness that is adequate for the relief base (8), which will in turn be catalyzed (cured), simultaneously, with the printing relief.